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MICROECONOMIC SURPLUS OR CONVENIENCE IN HEALTH CARE: APPLIED ECONOMIC THEORY IN HEALTH CARE IN THREE EUROPEAN COUNTRIES

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OBJECTIVES: In economic theory economic surplus refers to two related quantities: Consumer surplus (monetary gain obtained by consumers because they are able to purchase a product for a price that is less than the highest price they would be willing to pay) and producer surplus (amount that producers benefit by selling at a market price that is higher than the least they would be willing to sell for). Applying the theory to health care economic surplus could be translated as convenience benefits which could be skimmed by patients, physicians or health care payers. **METHODS:** Various areas of economic surplus were being screened and three areas in Germany, the Netherlands and the UK were analysed: Caesarean births, emergency room visits (nights or weekends) and response surplus. A targeted literature search was being conducted to identify the costs. The economic surplus (convenience value) was calculated. **RESULTS:** The economic surplus for non-medical driven Caesarean births was calculated as the difference of a DRG (Diagnosis Related Groups) for a vaginal birth and a Caesarean birth in Germany and was equal to € 828 per case. In the UK emergency visits during nights or weekends were analysed. Standard HRG (Healthcare Resource Group) value for an emergency visit was applied and the theoretical surplus was calculated applying a proxy-add-on taken from the proportionally higher wages during premium times and was ranging between € 94 and € 137 per case for nights shifts and weekends respectively. As an example of response surplus IVF-treatments in the Netherlands were chosen where it can be shown that there might be a patient surplus of up to € 4'096 per saved IVF-treatment. **CONCLUSIONS:** The application of standard economic theory confirms the availability of surplus skimming in health care and shows that health care systems are indirectly accepting and paying for convenience.

PHP82

HEALTH CARE UTILIZATION RESEARCH IN GERMANY: CHARACTERIZATION OF THE NORDBADEN DATABASE

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OBJECTIVES: The Nordbaden Project was established in 2003 as a cross-sectional analysis of the administrative prevalence, resource use, and direct medical costs associated with attention-deficit/hyperactivity disorder (ADHD). Meanwhile, the project has evolved into a longitudinal patient-centered study, allowing to follow identified patients over prolonged periods of time and to study the impact of moderators (e.g., coexisting conditions) and mediators (e.g., specialist involvement) on the quality and cost of health care services provided. The database enables retrospective health care utilization studies based upon claims data of the *Kassenaerztliche Vereinigung* (KV) in Nordbaden ("*Regierungsbezirk Karlsruhe*"), an affluent region in Southwestern Germany. **METHODS:** The database covers the complete regional population enrolled in statutory health insurance (SHI; >2.2 million lives). Based upon prospective data analysis plans, the vdek group of sick funds within SHI (850,000 lives in year 2009) offers prescription data for the subsample of patients insured by its member companies. Here, sociodemographic data of the study sample are compared to national averages (year 2009) to assess its representativeness. **RESULTS:** The demographic structure (by age and gender) of the Nordbaden sample (including its vdek subgroup) compares well to the national population. However, regional population density is much higher (396/sqkm versus 229/sqkm in 2009), and GDP per capita (34,800€ versus 29,300€) as well as the rate of persons insured by private sick funds (instead of SHI: 18.2% versus 14.6%) exceed the national average. There are also relatively more health care specialists in Nordbaden (for example, 11,400 persons per mental health care specialist and 3,200 per psychotherapist) compared to Germany (17,200 and 3,900, respectively), whereas the relative number of general practitioners is somewhat lower (with 1,500 persons per g.p. versus 1,400). **CONCLUSIONS:** The Nordbaden sample constitutes a well-characterized study population. However, interpretation of observations should take into account the well-documented differences between region and nation.

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THE OTC POLICY IN EYROPE AND GREECE

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OBJECTIVES: To analyses the policies implemented for the pricing, promotion and classification of over-the-counter (OTC) drugs, in several European countries and to compare them with those in Greece. **METHODS:** The study presents in detail the structure of the prescription drug (Rx) and OTC market and the prevailing corresponding policies in 23 European countries. The data used in the study were mainly derived from the published literature and were synthesized and categorized with emphasis on the classification process, pricing, reimbursement and promotion of Rx and OTC. The above process was used to reveal and highlight commonalities and differences between the countries. **RESULTS:** It was found that the great majority of European countries apply free pricing for OTC drugs and only few countries choose state intervention. The 21 out of the 23 countries allow the OTC market to self regulate through the mechanisms of the market and competition and the main exclusion is Greece, which is one of the two countries, from those examined, which the government regulates the prices of OTC drugs. This policy initially was intended to protect consumers from excessive pricing and overconsumption of widely used drugs but has opposite results. In terms of the content, the analysis indicates that the positive and negative lists are wider in the case of Greece and the OTC list is narrower compared with the remaining countries. **CONCLUSIONS:** International experience indicates that the OTC list in Greece is narrower and heavily regulated in terms of price relative to other countries. This may lead to opposite results that those intended by budget holders. Careful expansion of the OTC list along with release of their prices, may lead to savings for the public spending and greater access to patients at reasonable cost and a patient level.

PHP84

THE ECONOMIC HEALTH VALUE FROM RX TO OTC SWITCH IN GREECE

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OBJECTIVES: To estimate the economic impact of switching established prescription drugs (Rx) to over-the-counter drugs (OTC), for different stakeholders (patients, social insurance funds, the national economy, physicians). **METHODS:** An algorithm was constructed to estimate the percentage of drugs that could be transferred from the positive and the negative list to the OTC one, based on data obtained from the OTC lists of 24 countries in Europe. In the algorithm, it was assumed that a drug could be transferred in the OTC list in Greece if it was included in the corresponding list of at least seven other European countries. Based on this approach, it was calculated that 4.3% and 40% of drugs belong to the reimbursement and negative list, respectfully, could be shifted to the OTC list. The economic impact of the switch was estimated based on the reduction of medical visits, the change of drug prices, the chance of copayments, the reduction in transportation costs and the increase of patient productivity. The analysis was stochastic. **RESULTS:** In the base case scenario, the total annual savings for the social funds is estimated at 170€ million and the benefit for the economy at 78,96€ million. Patients are charged with extra 95€ million for drugs. It is estimated that the switch reduces the number of medical visits by 1,8 million and saves 1,28 million days of work. An increase of individual per capital expenditure by 9.4€ due to switch to OTC drugs could benefit by 249€ million to the national economy. These results were confirmed in two additional scenarios. **CONCLUSIONS:** The findings of this study suggest that the Rx-to-OTC switch may reduce the health care costs of social security funds and may benefit the national economy overall, with some reasonable extra costs incurred by patients on an individual basis.

PHP85

THE BENEFITS OF USING OTC: A SYSTEMATIC LITERATURE REVIEW

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OBJECTIVES: Greece goes through a major economic crisis and a reform program, in the context of which an aim is to cut by half drug spending within four years. Expansion of the over-the-counter (OTC) drug list could contribute to the reduction of public spending. Hence, a review was undertaken to investigate the implications of expanding their use. **METHODS:** Relevant published studies examining the effect of using OTC drugs were identified with search in MEDLINE, EBSCO and PUBMED. The literature search was based on the following terms: Over the counter, OTC, drugs, prescription medicine, Rx, Non Rx, benefit, economic impact, self-care. Studies were included based on the following criteria: peer-reviewed English-language articles, published from 2000 and over, cited at least in 25 other articles. The selected studies were divided into three groups based on the stakeholder for whom the study had been conducted. **RESULTS:** For patients, the shift of drugs from prescription to OTC status leads to increased access, greater utilization, reduced traveling cost and physician payments, increases in productivity and drug expenditure. The switch reduces public spending on drugs and physician visits. However, the expansion of the OTC list may in certain cases be associated with risks and negative effects on health outcomes, if patients are not well informed regarding the ways of responsible self-medication. Finally, the literature review revealed that patients are more likely to prefer a, more expensive, prescription drug from a cheaper but similar in effectiveness non-prescription one if both are available. **CONCLUSIONS:** It is evident that the greater use of OTC drugs may improve access, convenience, service, health outcomes and patient satisfaction and may reduce the expenditures of social insurance, under certain well controlled and designed circumstances. In particular the drugs need to be carefully selected and the patients and pharmacists well informed and trained on responsible self-medication.

PHP86

COST-EFFECTIVENESS IN HEALTH CARE PROGRAMS: A LITERATURE REVIEW

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OBJECTIVES: Aging population, chronic conditions and financial constraints are among the main challenges for our health care organization. Disease management programs and multidisciplinary teams are often proposed as possible solutions but, while cost effectiveness (CE) is well accepted and almost evident in the evaluation of drugs and technologies, it is not sure that it is also common use in the implementation of new health care programs. **METHODS:** In December 2011 we conducted a search for publications since 2000, in Pubmed, Cinahl, Econlit and Biomed Central, with "care program" or "disease management program" or "rehabilitation program" as mesh terms. To identify in how many cases generic health-related quality of life (HR-QoL) questionnaires were used, the search was extended

with the terms "EQ-5D", "SF-36", "SF-12" and "SF-6D". **RESULTS:** The initial search revealed 5745 publications, 227 of which referring to the HR-QoL questionnaires, of whom 209 were considered as relevant . Of these, 69 publications were proposed study protocols in which 31 announced to evaluate CE as an outcome value. Amongst the remaining 140 papers, 34 were reporting on a new technique, an alternative questionnaire or on HR-QoL without referring to CE, and 33 were reporting on pharmacology or HTA. This results finally in 73 research reports regarding care programs. In only 5 (7%) of them CE has been evaluated, in which 4 by comparing direct costs and 1 by using QALY's as outcome value. **CONCLUSIONS:** While longitudinal care programs for chronically ill implicate the use of many health care workers and labour cost is known to count heavily on the budget, CE is until now, almost never evaluated. Although CE can obviously not be claimed to be the single important criterion, it is a promising evolution to notice that many study protocols in this field also aspire after this outcome value.

PHP87

EVALUATION OF REAL LIFE USE OF SUGAMMADEX FOR DECURARIZATION OF NEUROMUSCULAR BLOCKADE IN SURGICAL INTERVENTIONS IN BELGIUM

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OBJECTIVES: Sugammadex is registered for decurarization of moderate/deep neuromuscular blockade induced by rocuronium or vecuronium. The advantages compared to the well-known decurarization drugs like neostigmine is that undesirable side-effects (bradycardia-bronchoconstriction-hypersalivation-nausea-vomiting) are avoided and deeper levels of blockade can be reversed. In Belgium its reimbursement is restricted to certain conditions (impossible intubation or rapid decurarization of deep blockade when medically required or rapid decurarizaton moderate blockade in patients with obstructions (stomach/bowel, bile duct, urinary tract) or when administration of neostigmine is contra-indicated). The objective of this study was to evaluate Belgian real-life use of sugammadex one year after reimbursement was granted. **METHODS:** The medical records of 330 adult patients being treated with sugammadex during the first half year of 2011 (6 hospitals selecting 55 consecutive patients) were retrospectively reviewed. Data collection included baseline patient-characteristics, hospital-, surgery- and sugammadex-related info. In addition, a 2-round expert-panel among 12 physicians was organized. **RESULTS:** Based on the expert-panel (in combination with published data), it was estimated that in Belgium rocuronium is used in about 58,100 surgical interventions per year. Reversal with sugammadex is performed in 21.5% of them. Mean age of the patients using sugammadex was 54 years (+/− 17 SD), 45% of the patients belonged to ASA (American Society of Anesthesiologists) category I-II (healthy-mild systemic disease), 33% to category>III, 84% had co-morbidities. Sugammadex is mainly used after gastroenterological surgery (53%; high contribution of bariatric-surgery), followed by gynaecological interventions (12%), estimates confirmed by the expert-panel. According to the experts, in 29% of the patients reversal with sugammadex was used outside the reimbursement conditions. **CONCLUSIONS:** The study confirms that, in Belgium, sugammadex is used when medically needed, a substantial part being used outside the reimbursement conditions.

PHP88

A REIMBURSEMENT METHOD FOR THE PUBLIC HEALTH CENTERS IN GREECE

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OBJECTIVES: To propose a prospective payment method for the public Health Centers (HC) in Greece, based on the reimbursement method of Ambulatory Patient Groups (APG). **METHODS:** In the absence of electronic patient records, implemented International Classification of Diseases and Current Procedural Terminology coding systems, an updated costing system and given that HC in Greece provide a quite low bundle of services the methodology of the study was accordingly adjusted. The services provided by the HC were grouped and classified in a few distinct groups and evaluated by a Delphi panel according to their usability, coherence and technology and labor resource use. According to each groups resource use, a corresponding labor and technology weight was estimated. An expert panel estimated the percentage contribution of labor and technology cost in the payment of each group. The average cost of visit in the HC was used as a base rate. A mathematical model employed these parameters and provided an estimation of each group's payment. Model's results and parameters were evaluated and adjusted to a second expert panel recommendations. APGs' packaging and discounting techniques were applied. **RESULTS:** Sixteen groups were created and priced as follows: Emergency Management (102.6€), Acute Case Management (64.7€), Follow up/Revisit for an urgent/emergency problem (29.5€), Complete Health Evaluation (48.1€), Partial Health Evaluation (39.6€), Regular consultation of healthy individual (34.9€), Laboratory tests (100.8€), Prescription/simple repetition (4.7€), Prescription of drugs/laboratory tests with Basic medical exam (18.7€), Simple diagnostic/therapeutic procedure (26.9€), Complex diagnostic/therapeutic procedure (57.6€), Immunization (23.5€), Primary Prevention/Health education (24.7€), Complex preventive procedure (39.8€), Physical medicine/Rehabilitation/Counseling/Psychotherapy/Social support consultation (29.1€), Administrative procedure (12.8€). **CONCLUSIONS:** Despite the limitation imposed by the health system's infrastructure, the current study is estimated that can provide a viable reimbursement method and a starting point for the development of a more detailed method in the future.

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MARKET ACCESS OF DRUGS IN FRANCE: EVOLUTION OR REVOLUTION?

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OBJECTIVES: Describe and analyze recent changes in the French drug market access in which a dramatic shift in practice is undergoing and impacted by two laws entered into force in December 2011. **METHODS:** Literature review was performed to provide core understanding of the current and future trends in French drug market access to anticipate its impact for pharmaceutical industry. **RESULTS:** Condition severity used to be main driver of reimbursement level is now replaced by drug efficacy criterion. Moreover, the effect size requested for acknowledging drug innovation has substantially increased. Perceived evidence might also be more important than actual evidence. Currently, the French National Authority (HAS) is working on a new therapeutic index that will drive the pricing and reimbursement. Comparative evidence and real world data are pointed as critical, conditioning marketing authorization, and will be increasingly requested at the light of the new drug safety law n.2011-2012. Moreover, within this new legal framework there is a reinforcement of the regulation about conflicts of interest, a much closed regulation of off-label prescription and early entry of drugs as well as a wide promotion of generic drugs. The new social security funding law n.2011-1906 pursues the cost containment measures to control health insurance expenses. This law includes the Economic and Public Health Assessment Committee (CEESP) in the social security code. CEESP, that will operate independently of the Transparency Committee, is in charge of health economics evaluation to determine the most efficient therapeutic strategies and edit recommendations for decision makers. **CONCLUSIONS:** French drug market access will be more and more driven by comparative cost-effectiveness data and post-marketing studies. Companies will need to anticipate these requirements during the drug development. However in France, there exists little or no culture of using health economics for decision making and rather resistance to it.

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JAPANESE PRICING REFORM IN APRIL 2012: TOWARD COST CONTAINMENT

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OBJECTIVES: Pricing regulation in Japan is thought to be conservative, however over the last years, an acceleration of pricing regulation changes has occurred. We propose to review the dramatic pricing regulation changes that have occurred especially in 2012. **METHODS:** Collection and analyses of changes have been performed through literature review of public sources and key opinion leader's interviews. **RESULTS:** One of the main changes concerns pediatric indication that will now induce premium price for drugs from 5% to 20%, conditional to substantial efforts from pharmaceutical companies, including studies in Japan and pediatric formulations. Then, usual cost plus calculation, using the last year as reference for production, labor, distribution costs etc., will now use the average of the previous 3 years to minimize inflation. International reference pricing have been reviewed to minimize the cost impact on NHS. As for generics, although they doubled in volume and value over the last 10 years, they progress slowly: in 2011, generic market was 23% in volume and 9.5% in value. To counter this, doctors are now eligible for generic prescription incentive and high co-payment on brand appears to be the way forward to support generic uptake. Prescription form has been reviewed to ease request for generic substitution. Generics are priced between 30% discount down to 46% discount at the maximum. In parallel, enantiomer drugs will now be discounted by 20% over racemates. This will put them close to generic price (30% discount). However, opportunities for re-pricing up products were closed to prevent orphan drugs from expanding indication market size and later revenue. Finally, high drug costs will be excluded from reimbursement through a process based on drug price distribution to secure convergence toward mean price. **CONCLUSIONS:** Despite apparent peace and resistance to changes, Japan market is also undergoing dramatic changes.

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IS THERE AN OVERUSE OF COMPUTED TOMOGRAPHY (CT) SCANNING OF PATIENTS IN UNITED STATES HOSPITALS? A REVIEW OF THE EVIDENCE

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OBJECTIVES: Radiologists claim that performing two or more CT scans in succession is rarely necessary, yet the practice of multiple CT scanning during the same visit has continued in recent years. The objective of this study is to review the evidence and identify factors contributing to this practice. **METHODS:** The retrospective study included patients from the US Medicare 2009 hospital database. Over 6 million outpatient claims with the following information were extracted: patient demographics, hospital characteristics, CT scans hospital charges and body parts associated with CT scan administration. Multi-level logistic mixed effects regression was conducted to identify significant factors associated with the overuse of CT scans among US hospitals. **RESULTS:** There were 690,643 Medicare patients that received multiple CT scans during a hospital outpatient visit in 2009. More than 664 hospitals that administered at least two scans on more than 30% of their Medicare outpatients. The national average was 5.4%. The figures show wide variation among states as well, from about 5% in Maryland to almost 23% in Oklahoma. After multivariable adjustment, female patients had a lower incidence rate of CT scan overuse (odds ratio, 0.850; 95% CI, 0.847 to 0.851, $p<0.0001$). Rural hospitals tend to practice more CT scan overuse (odds ratio, 1.835; 95% CI, 1.670 to 2.016, $p<0.0001$) than urban hospitals. Hospital charged patient costs of CT scans also tend to vary across regions. **CONCLUSIONS:** There is strong statistical evidence that US hospitals practice of CT scan overuse continued in 2009 based on the Medicare outpatient population. While the study is subject to limitations, it corroborates with previous policy studies that hospitals can and should do more to